

# ENTOMOLOGICAL NEWS

VOL. LXXVI

JANUARY, 1965

No. 1

## A New Genus of Neotropical Psocids with Horn-like Structures on the Head. (Psocoptera, Pachytroctidae)

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Psocoptera (Corrodentia, Copeognatha) are commonly exemplified by a few domestic booklice or common bark-frequenting forms. However, the great structural and biological differences that occur within the order have led to the current recognition of approximately 25 families. The psocid described here has striking hornlike structures on the margin of the vertex (Fig. 4) and represents a new genus in the family Pachytroctidae, subfamily Pachytroctinae. It was collected in Trinidad and Brazil from foliage and ground litter.

The Brazilian specimen was collected by Aaron M. Nadler, of Brooklyn, N. Y., those from Trinidad by A. H. Strickland, of Harpenden, England, at that time located at the Imperial College of Tropical Agriculture, Trinidad. R. G. Donald, R. G. Fennah, and Edward McC. Callan, all associated then, or later, with the same institution, supplied additional information. John V. Pearman, Tring, England, has been consulted about the identification of this psocid, and I am indebted to Edward L. Mockford, Illinois Normal University, Normal, Ill., and C. N. Smithers, Australian Museum, Sydney, for reading the manuscript.

### ANTILOPSOCUS, new genus

General body form (Fig. 1) much like *Pachytroctes* except for "horns" on vertex and T-shaped sclerite attached to inner

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surface of female subgenital plate. Body arched in lateral view, not flattened; without scales or conspicuous pattern of setae; hypognathous, longitudinal axis of head oblique in lateral view.

Head with roughened sculpture; conspicuous dorsal "horns" on margin of vertex (Figs. 4, 5); epicranial suture present, no frontal sutures; no ocelli; eyes large, not extending posteriorly quite to margin of vertex; facets numerous, no rods or setae between facets; antenna with 2 basal segments and 13 flagellar antennomeres; labial palpus apparently 2-segmented; maxillary palpus 4-segmented; lacinia ("pick") with 2 conspicuous teeth and a small inner one.

Pronotum very distinct; meso- and metanota closely joined but demarked by transverse line. No wings. Legs elongate; femora scarcely flattened or widened; tarsi 3-segmented; each claw with single preapical tooth only (Fig. 21). Female supranal plate simple, with few conspicuous setae; paraproct lacking sensory area, with several fairly long setae, one long terminal seta (Fig. 12); gonopophysis inconspicuous; subgenital plate broad, T-shaped sclerite present (Fig. 14).

Type species *Antilopsocus nadleri*, new species.

*Antilopsocus* runs to the Pachytroctidae in the family keys of Sommerman (1954), Roesler (1944), and Pearman (1958). Pearman's organ (specialized area on mesal surface of hind coxa; see Badonnel 1943, p. 9) and secondary annulations of antennomeres near apex of flagellum appear to be absent in the material before me. A sensory peg apparently occurs near base of segment 2 of maxillary palpus. Each paraproct of *Antilopsocus* bears a conspicuous, medially directed (in dorsal view) terminal seta (Figs. 1, 12), about the same size as that in the genus *Trogium* of the family Trogiidae. I do not know of other pachytroctid genera with such conspicuous terminal setae.

Badonnel (1951, p. 1325) diagnosed the group Nanopsocetae, to which the Pachytroctidae belong, as lacking spines on the paraprocts; however, terminal spines or strong setae, called "appendices anales" by Enderlein (1905, text-fig. 6), are well known in the group Atropetae and elsewhere. Apparently the definitions of the family Pachytroctidae and group Nanopso-

cetae require broadening to include at least moderately conspicuous terminal setae of the paraproct.

The discovery of the male and of winged individuals, if they occur, would be of great value in further defining the genus. Menon (1942, p. 30) warned against making assumptions based on one sex when dimorphism exists.

This genus was compared with other genera of the Pachytroctinae, as listed by Roesler (1944, pp. 135-136), from which *Sphaeropsocus* and *Palaeotroctes* were since removed. Menon (1942), Pearman (1958), and Badonnel (1963, p. 322) dealt with the position of *Sphaeropsocus*, of which *Paleotroctes* is a synonym. From all previously known pachytroctine genera *Antilopsocus* differs in one or more characters additional to the cephalic "horns." It agrees best with *Pachytroctes*, which, however, lacks the T-sclerite according to Badonnel (1949, p. 25; 1955, pp. 100 *et seq.*). All current pachytroctine genera are exclusively Old World as now known except the Brazilian *Neotroctes*, which Roesler (1940, p. 228; 1944, p. 136) described as possessing 5 lacinial teeth, and *Tapinella*.<sup>1</sup> Relationship to *Nymphotroctes* of France (Badonnel, 1931) is suggested by the tuberculate surface of the head in the two genera, but *Nymphotroctes* differs from *Antilopsocus* in having rods among the eye facets and minor teeth basad of the preapical tooth of the claws.

Comparatively few psocids with unusual head shapes are known. Various species have the compound eyes borne on a pedestal-like base; to a minor extent this development is shown by *Psocus elegans* Banks and *P. lichenatus* Walsh (family Psocidae) of the United States. An extreme example (Fig. 8) of the pedestal type of development is *Labocoria diopsis* (Enderlein) (Mesopsocidae) of Tanganyika, Africa.<sup>2</sup> In the

<sup>1</sup> *Neotroctes* was based on *Pachytroctes brasiliannus* Roesler, 1940, collected beneath bark at Nova Teutonia, Santa Catarina, Brazil, *Tapinella* is represented in the New World by *T. maculata* Mockford and Gurney 1956 of Texas, which has the T-sclerite and the lacinia shaped rather differently from *Antilopsocus*.

<sup>2</sup> Described by Enderlein (1902) from Langenburg, at the northern end of Lake Nyassa, in former German East Africa.

Pachytroctidae a distinctive vertex shape, with blunt triangular lobes, is exhibited by *Peritroctes cochiniensis* Menon of India (Fig. 7).

The name of the genus is adapted from the Greek word *Antholops*, meaning a horned animal, and *psocus*. The prefix *antilo* occurs in *Antilocapra*, the genus of the pronghorn antelope of western North America, the horns of which superficially resemble the dorsal head structures of this unusual psocid.

### ***Antilopsocus nadleri*, new species. Figs. 1-6, 9-21**

The following description is based on the holotype except as noted.

*Holotype*.—Female. TRINIDAD: Imperial College of Tropical Agriculture, 1943-44, from soil litter (A. H. Strickland) (in alcohol, some parts on slides). [U. S. National Museum, Type No. 67408.]

General form as in Fig. 1; wings lacking. Head as in Fig. 4 in frontal view, Fig. 5 in lateral view (much foreshortened in Fig. 1); vertex with dorsal extension of head capsule on either side, shaped like a horn, each with a branch curved laterally and posteriorly, cuticle of horn sharply granular (Fig. 2); head capsule with roughened surface, especially on gena where variety of blunt tubercles (Figs. 2, *bt*; 3) occur, some bearing setae; mandibles as in Figs. 18 and 19, lacinia (Fig. 11) with inner tooth much reduced; maxillary palpus with apparent sensory peg near base of segment 2 (Fig. 9, *sp*), but interpretation uncertain; labial palpus (Fig. 10 from Brazilian specimen) apparently 2-segmented, but segmentation unclear. Antenna

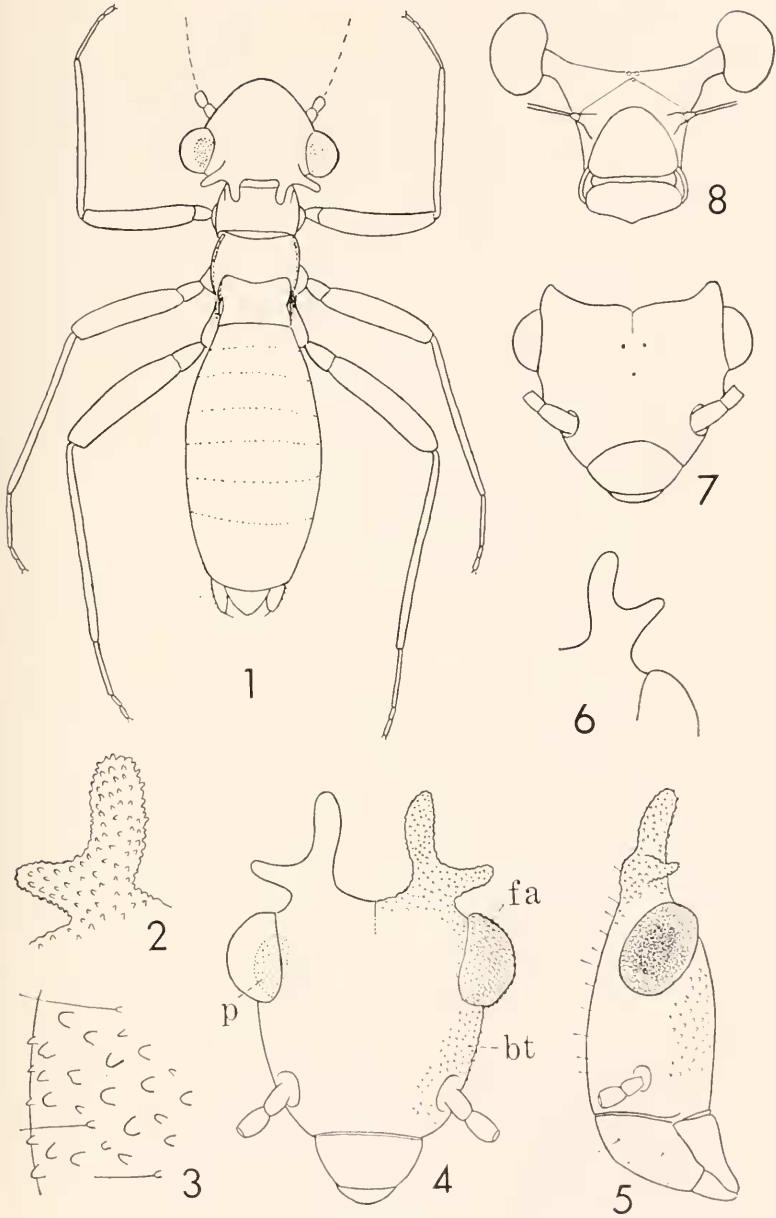
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#### EXPLANATION OF FIGURES

FIGS. 1-6. *Antilopsocus nadleri*, n. sp. 1, 4, 5, holotype; 2, 3, paratype; 6, specimen from Brazil. 1, General view, head foreshortened; 2, right "horn," front view, showing tubercles; 3, part of left gena, ventral view; 4, head, front view, details of integument shown only on left side; 5, side view of head, integumental details only in part; 6, outline of left "horn."

FIG. 7. *Peritroctes cochiniensis* Menon, head, adapted from Menon (1938).

FIG. 8. *Labocoria diopsis* (End.), adapted from Enderlein (1902) (*bt*—blunt tubercles; *fa*—facets; *p*—pigment).



FIGS. 1-8.

with 2 basal segments elongate barrel-shaped; flagellum (of Brazilian specimen) of 13 antennomeres, with length ratios as 10:9:11:9.5:10:9:8.5:9:6.5:7:7:8:6; flagellar setae relatively inconspicuous, coarsest at base (Fig. 15, flag. 1; Fig. 16, flag. 6), flagellum 9 (Fig. 17) with large preapical seta.

Thorax more heavily sclerotized than most of abdomen, more distinctly on lateral margins of nota and on pleura than on disks of nota; without trace of wings. Length ratios of femur, tibia, tarsomeres 1, 2, and 3 of front, middle, and hind legs, respectively (paratype from Trinidad), are: Front, 30:40:12:4:5; middle, 30:44:13:4:5; hind, 35:57:17:4:5. Trochanters closely joined to femora; hind tibia with roughened, semicrenulate surface, less so on hind femur and front and middle legs; femora with preapical spine near ventral margin, a few tiny marginal spines; front and middle tibiae with fairly conspicuous marginal setae, especially in apical half.

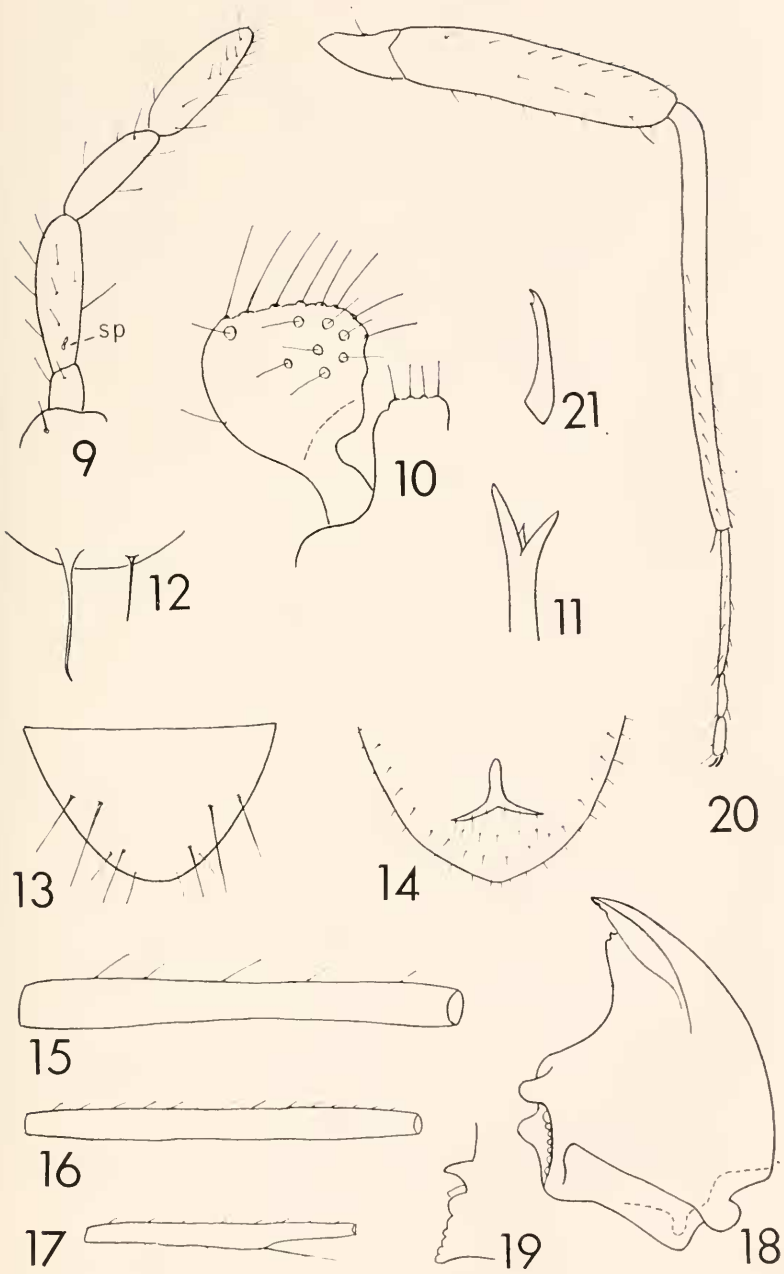
Abdomen with inconspicuous segmentation; no sculpture on integument noted; body setae sparse. Supra-anal plate (Fig. 13) with distinct setal pattern; paraproct with long, apically curved terminal seta (Fig. 12); subgenital plate and T-shaped sclerite as in Fig. 14.

*Coloration*: Head mainly butter yellow; eyes pale except for dark brown inner pigment; basal 2 antennal segments yellowish, flagellum blackish to apical half of flag. 8, again on flag. 13 and apical half of 12, intervening antennomeres colorless; general color of thorax varying from cream to champagne, darkened at shoulders and pleura; tibiae darkened to grayish yellow; tarsomeres 2 and 3 pale; abdomen whitish, tinged with yellowish white on genital segments (color terms from Kornerup and Wanscher's Reinhold Color Atlas).

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#### EXPLANATION OF FIGURES

FIGS. 9-21. *Antilopsocus nadleri*, n. sp. 9, 11, 18, 20, 21, paratype; 12-14, holotype; 10, 15-17, 19, specimen from Brazil; 9, left maxillary palpus; 10, one side of labium; 11, apex of left lacinia; 12, apical portion of paraproct; 13, supra-anal plate; 14, subgenital plate, showing T-shaped sclerite; 15, 1st antennomere of flagellum; 16, 6th antennomere of flagellum; 17, 9th antennomere of flagellum; 18, ventral view of left mandible; 19, dorsal view, molar area of right mandible; 20, anterior surface of left hind leg; 21, one claw from left middle tarsus (*sp*—sensory peg). (Drawings by the author.)



FIGS. 9-21.

*Measurements* (in millimeters) of holotype and specimen from Campo Grande, Brazil, respectively: Length of body, 1.5, 1.45; greatest head width across eyes, 0.43, 0.42; overall head length, apex of "horn" to apex of labrum, lateral view, 0.65, 0.56; space between eyes at vertex, 0.30, 0.27; narrowest distance between eyes across front, 0.23, 0.23; greatest longitudinal diameter of eye, lateral view, 0.13, 0.13; narrowest transverse diameter of eye, lateral view, 0.10, 0.10; length of front femur, 0.33, 0.28; front tibia, 0.43, 0.38; middle femur, 0.32, 0.26; middle tibia, 0.46, 0.38; hind femur, 0.37, 0.33; hind tibia, 0.60, 0.53; hind tarsus, 0.28, 0.26.

*Variation:* The paratype from Trinidad is mounted on a slide and the head is partly dissected. Its leg measurements are practically the same as those of the holotype, and the shape of the cephalic "horns" agrees essentially. However, the Brazilian specimen (Fig. 6) differs from the holotype in the "horns," especially in the shape of the lateral appendage, as well as being a little smaller in most body measurements. The antennae of the holotype are not preserved except for the basal 2 segments. Those of the paratype are on a slide and, though the details of the flagellum are not well displayed, they appear to agree essentially with those of the Brazilian specimen.

Because the distance between Trinidad and Campo Grande, Mato Grosso, Brazil, about 2,200 miles, suggests a wide distribution for a species which seems to be of a somewhat localized type, I have consulted the collector of the Brazilian specimen about possibilities of an error in labeling. Mr. Nadler is confident (letter of March 6, 1964) that collection data with the specimen are correct. Although he collected in Trinidad later during the same month in which he visited Campo Grande, all vials from each place were handled entirely separately, and he sees no likelihood of error in labeling.

In view of the differences shown by the Brazilian specimen, perhaps additional specimens, particularly males, will show that a distinct species occurs in Mato Grosso.

*Material examined:* 3 wingless adult females (Holotype; 1 paratype collected with holotype [U. S. National Museum];



1 specimen from Campo Grande, Mato Grosso, Brazil, Jan. 9-10, 1959, collected while beating scrub vegetation and sugar cane beside wide paved road near town (A. M. Nadler) [Amer. Mus. Nat. Hist.]. The holotype is preserved partly in alcohol and partly on 2 slides; the paratype is divided and on 3 slides; and the Campo Grande specimen is partly in alcohol and partly on 6 slides.

The specimens collected by A. H. Strickland in Trinidad were taken during a survey, results of which he recorded in two papers (1945; 1947). In the 1945 paper he reported no psocids, but in the 1947 paper he showed that this species was the "one undetermined species" he submitted for identification to the U. S. National Museum, where it was examined by H. K. Townes in 1945.

In the 1947 paper a cacao plot located in the foothills of the Northern Range of Trinidad, near the St. Augustine Cotton Experiment Station, is given as the source of that species. Trees about 12 feet high provided a thick canopy over the cacao plantation where arthropods were obtained from ground litter and soil. Table 3 of the paper indicates that Psocoptera were taken from the cacao plot only in January and February, 1944. In response to an inquiry, Mr. Strickland stated (in a letter dated Dec. 5, 1949) that he remembered the "horned, stag-like psocids" collected in Trinidad, and that they were shown to the late A. D. Inms. It was Strickland's impression that a division of the soil arthropod collection before samples were sent to Washington for identification may have resulted in some specimens of the "horned" psocid remaining in England. However, several inquiries failed to locate additional specimens.

I am glad to name this remarkable insect in honor of one of its discoverers, my friend Aaron M. Nadler, whose energetic collecting, especially in the Neotropics, has resulted in a choice reservoir of psocid and spider specimens at the American Museum of Natural History.

#### REFERENCES

- BADONNEL, A. 1931. Copeognathes de France (III\* note). Bull. Soc. Zool. France 56: 431-437, 5 figs. (*Nymphotroctes denisi* described.)

- . 1943. Psocoptères. Faune de France 42: 1-164, figs. 1-375.
- . 1949. Psocoptères du Congo Belge (3<sup>o</sup> note). Bull. Institut. Roy. Sci. Nat. Belg. 25 (11): 1-64, 83 figs.
- . 1951. Ordre des Psocoptères, pp. 1301-1340, figs. 1135-1169. *In* Traité de Zoologie (P. P. Grassé, Ed.), vol. 10, 2nd fasc., pp. 976-1948.
- . 1955. Psocoptères de l'Angola. Museu do Dundo, Diamang, Publ. Cult. 26: 1-267, 625 figs.
- . 1963. Psocoptères terricoles, lapidicoles et corticoles du Chili. Pp. 291-338, 88 figs. *In* Biologie de l'Amérique australe (C. Delamare DeBoutteville and E. Rapoport, Eds.), vol. 2, 398 pp.
- ENDERLEIN, G. 1902. Psociden aus Deutsch-Ostafrika. Mitt. Zool. Mus. Berlin 2 (2): 7-16, 14 figs.
- . 1905. Morphologie, Systematik und Biologie der Atropiden und Troctiden. Results Swed. Exped. Egypt White Nile, 1901. 18: 1-58, 11 text figs., 4 pls.
- KÖRNERUP, A., and J. H. WANSCHER. 1962. Reinhold Color Atlas. 224 pp., 30 col. pls. New York.
- MENON, R. 1938. Two new species of Pachytroctidae (Copeognatha) with a note on the family. Proc. Indian Acad. Sci. 8 (Sect. B): 280-287, 4 figs.
- . 1942. Studies on Indian Copeognatha (Psocoptera). II. Nanopsocetae and Psocatropetae. Indian Jour. Ent. 4: 23-42, 38 figs.
- MOCKFORD, E. L., and A. B. GURNEY. 1956. A review of the psocids, or book-lice and bark-lice, of Texas (Psocoptera). Jour. Washington Acad. Sci. 46: 353-368, 53 figs., 1 map.
- PEARMAN, J. V. 1958. Augmented description of *Badonnelia titei* Pearman (Psoc., Sphaeropsocidae), with notes on the genus *Sphaeropsocus*. Ent. Mo. Mag. 94: 49-52, 13 figs. (Includes key to families of Nanopsocetae.)
- ROESLER, R. 1940. Neue und wenig bekannte Copeognathengattungen. I. Zool. Anz. 129: 225-243, 39 figs.
- . 1944. Die Gattungen der Copeognathen. Stett. Ent. Zeit. 105: 117-166.
- SOMMERMAN, K. M. 1954. Key to the families of Psocoptera. Pp. 172-177. *In* An introduction to the study of insects, by Borror and DeLong,<sup>3</sup> 1030 pp., illus. New York.
- STRICKLAND, A. H. 1945. A survey of the arthropod soil and litter fauna of some forest reserves and cacao estates in Trinidad, British West Indies. Jour. Animal Ecol. (London) 14: 1-11, 1 fig.
- . 1947. The soil fauna of two contrasted plots of land in Trinidad, British West Indies. *Ibid.* 16: 1-10.

<sup>3</sup> In the revised edition of Borror and DeLong, 1964, the key to families of Psocoptera is modified from Roesler.